

Facts and ideas from anywhere



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SOUTH KOREA

In April 2005 I spoke at an international conference on invasive cardiology in Seoul, South Korea (officially, Republic of Korea). It took 23 hours to get from my Dallas home to the Seoul Hotel via Tokyo, of which 15.5 hours was flying time. It took 18 hours to get home via a direct flight, 13 hours of flight time. I found the country to be quite intriguing and share here some historical and cultural details.

Environment. South Korea's incredible economic growth since 1960 has transformed the country from a mostly rural society to an 80% urban society (1). Sprawling apartment-block cities, dams, and huge industrial complexes have been constructed, and wide freeways have been bulldozed through the countryside. The Korean peninsula is about 70% mountains. Thousands of islands are just offshore, mainly in the south and west. South Korea's land area is just under 100,000 square kilometers (about the size of Indiana or Portugal), almost as large as North Korea (120,000 square kilometers). The plains and shallow valleys are dominated by irrigated rice fields, small orchards, plastic greenhouses growing vegetables, and barns housing cows, pigs, and chickens. Korea has 20 national parks that cover nearly 7% of the country. Koreans are the world's most enthusiastic hikers, and most parks are crowded on weekends. Nuclear power generates a third of its electricity. South Korea has been unable to find a permanent storage site for its radioactive waste.

History. Buddhism was introduced into Korea from China in the fourth century. Many wooden temples remain in the mountains today, and many are >1000 years old. Buddhism became the official religion, and some monasteries became wealthy, owning large estates with thousands of slaves. Some monks dressed in silk robes, rode fine horses, and indulged in wine, women, and song. In 1392, the Joseon Dynasty began, and it continued until 1910 when Japan captured Korea. Buddhism thereafter was gradually replaced as the state religion by Neo-Confucianism. The first Joseon king took over the monasteries' estates and their 80,000 slaves, and many temples were closed or destroyed. Buddhists suffered severe discrimination throughout the Joseon era. Although half of South Koreans have no religious affiliation, Buddhism in South Korea is still a powerful force (25% are Buddhist). (In North Korea, in contrast, the 2 Kims since 1948 have treated the Buddhists even worse than the Joseon kings did. Religious practice is forbidden, and persistent offenders are sent to forced labor camps. Few temples were maintained or rebuilt after the

Korean War ended in 1953, and the only worship allowed in North Korea is at the numerous shrines and monuments to Kim Il-sung.)

Because the first Joseon Dynasty was made possible by help from the Chinese army, Korea catered to China. When Japan attacked Korea in the 1590s, Chinese troops helped Korea repel them. In a single battle, 30,000 Chinese soldiers died. In 1894, China was defeated by Japan, and defenseless Korea was taken over almost without the Japanese firing a shot. The Chinese reappeared in 1950 during the Korean War when a huge Chinese army suddenly attacked the United Nations forces (primarily American and South Korean troops) and rescued the North from certain defeat. Since 1945, South Korea has admired the West rather than China, and the USA has served as its protective big brother.

The apex of the Confucian Joseon system was the king, who had absolute power. His main palace contained about 800 buildings and over 200 gates, and, in 1900, palace costs accounted for 10% of government expenditures. Four hundred eunuchs, 500 ladies in waiting, 800 other court ladies, and 70 female entertainers made up the royal household. Only women and eunuchs were allowed to live inside the palace. Male servants, guards, officials, and visitors had to leave at sunset. The court ladies were locked up behind the nine gates of the palace, where they waited upon the king and queen, princesses and princes. The king's palace contained about 800 troops, 1500 attendants and officials, and various courtiers and ministers and their attendants, secretaries, messengers, and hangers-on.

The Joseon era (1392–1910) strengthened the class system inherited from the previous dynasties. The Joseon Korean society was divided into four hereditary groups. At the top were the bilingual (Chinese and Korean) *yangban*, who were landowners and then collected rent for themselves and taxes for the government. The *yangban* disdained military and business occupations but admired teachers, scholars, poets, and artists. They rarely paid taxes or did military service, and the symbols of their high rank included tiled houses, silk robes, black hats of woven horsehair, long pipes, ink stones, and calligraphy brushes. Their position within their class depended on the size of their estate, the number of their slaves and concubines (secondary wives), and their government job.

Below the *yangban* were the *chungin*, the middle people, who were accountants, high-ranking soldiers, successful merchants, and local magistrates. Most of this small class had specialist government jobs in Seoul, which they passed on to their children.

The *sangmin*, or common people, were the largest group, consisting of peasant farmers, free laborers, and fisherman. They spent their lives working hard for little or no reward. They were

forced to pay high rent and taxes and were subjected to regular military conscription and forced labor on government projects.

The *chonmin*, low born, were at the bottom level of society, and 30% of this group were slaves. The slave system went back to the Three Kingdoms. The government owned many slaves (450,000 in 1467), and the rest were privately owned and worked on farms or in households. A wealthy family might have 50 slaves. Slaves had no family name and cost less than a cow or horse, and slaves' children could be taken away or sold when they reached working age. Slavery was hereditary, so they were trapped forever. Even if a slave married a nonslave, their children were still slaves. A peasant and slave rebellion played a major role in the Joseon Dynasty's downfall and the Japanese takeover in 1910. Slavery was abolished in 1897. Grave diggers, prison wardens, wicker workers, hostesses, traveling entertainers, shamanist healers, monks, and nuns were all in the unfortunate *chonmin* group. The lowest of the low were butchers and tanners.

The strict hierarchy helps to explain why Korea is one of the few Asian countries where large numbers adopted Christianity (now 25% of the population). The Christian concept of the equality of men and women outraged the Confucian *yangban* but represented hope for a better life and future for women and the oppressed masses. Protestant missionaries arrived in 1884 and founded many schools and hospitals, many of which are still running.

Still today the legacy of the traditional social system is strong: everyone wants a white-collar job, and manual labor is looked down on. There is a strong feeling that authority—whether that of parents, teachers, older people, or the government and police—should be respected and obeyed.

The 35-year (1910–1945) Japanese occupation of Korea was a traumatic experience that has not been forgotten or forgiven. In the North, countless films and television programs still focus on atrocities committed by the Japanese during their rule. A certain amount of collaboration was unavoidable, especially in the latter war years. Koreans made up 50% of the police force who hunted down and tortured thousands of Korean independence fighters, urged students to join the Japanese army, and made money forcing young Korean girls to have sex with Japanese soldiers. Pro-Japanese *yangban* were rewarded with special titles. Collaboration was widespread. Westernized Japanese bureaucrats ran the colonial government and modernized it and implemented policies that developed industries. Japan also tried to destroy the Korean sense of national identity. Koreans were forced to use Japanese names, speak and write Japanese, bow to the Japanese emperor's picture, and pray at Shinto shrines. Korean history books were burned. By 1940, the Japanese owned 40% of the land, and 700,000 Japanese were living and working in Korea. About 3 million Korean men and women were uprooted and sent to work as miners, farm laborers, factory workers, and soldiers abroad, mainly in Japan.

From 1953 until 1992, economic development was rapid, despite corrupt, autocratic, and military rulership. The media were censored, political opponents were imprisoned and tortured, elections were manipulated, and the constitution changed continually. Finally in 1992, a civilian democratic government arrived.

Culture. Korea is probably the most Confucian nation in Asia. At the heart of the Confucian doctrine are the Five Relationships, which are important in making sense of Korean society. All rela-

tionships require a placement in some hierarchy so that everybody knows how to behave and speak with respect towards one another. Courtesy is highly valued, and most Koreans go out of their way to be pleasant and helpful—especially to visitors, because they want visitors to have a good impression of their nation. Respect for seniors is one of the more admirable legacies of Confucianism. Confucian relationships dictate that fathers, husbands, teachers, bosses, and the government should be authoritarian rather than democratic, a view changing only slowly.

Koreans have some fanatical streaks. They are obsessed with computer games, students frequently study all night, they train in sports relentlessly, and they work excessive hours. Everything is taken seriously. Life is competitive and stressful, and no safety net is provided by a welfare state. Health insurance and pensions are available only to those who work. Citizens depend on their own efforts. They are very health conscious. Thousands of health foods and drinks are sold in markets and pharmacies.

Family life is rapidly becoming westernized. Small nuclear families are the norm, and divorce and abortion rates are high. Education and other costs limit families to 2 children or less. Although dating and love marriages are on the increase, many marriages are still arranged by parents or matchmakers.

Korea remains Confucian despite its recent modernization. Confucianism is not a religion but a philosophy, an ideology, a mindset. Its tenets include 1) authority and seniors are respected and obeyed; 2) education is highly regarded; 3) men and women have separate roles and live separate lives (women's role is life-long service and obedience, so men do not do housework, cook, or look after children); 4) status and dignity are important, and every action is a reflection on one's family, school, company, and country; 5) a pecking order overrides equality; 6) life is lived to raise up one's family reputation and wealth (e.g., study hard and work hard, never marry someone against parents' wishes, and have a son to continue the family line); 7) loyalty is expected; and 8) saving money, avoiding extravagance, and wearing conservative clothes are valued.

South Korea is facing a shortage of marriageable women. In 2002, 109 boys were born for every 100 girls, and by the year 2010 it is estimated that there will be 128 single men at peak marriageable age (27–30 years) for every 100 single eligible women (24–27 years). Although they are illegal, ultrasonic examinations are sometimes used to discover the sex of a fetus, and females are often aborted. Life expectancy in South Korea is now 80 years for women and 72 years for men.

Food and drink. The typical Korean meal is based around rice, soup, and *kimchi* (pickled or fermented vegetables), Korea's national dish. Garlic, ginger, green onion, black pepper, sesame oil, soy sauce, and vinegar abound, and chili pepper (red pepper paste) is the big spice. Korea is famous for its barbeque. Barbeque restaurants typically have a grill set into the table on which one cooks beef ribs or in some places chicken, seafood, or vegetables. *Kimchi* can be made from cucumbers, radishes, and just about any other vegetable. Some varieties are aged for hours, others for years. Traditionally, *kimchi* was made to preserve vegetables and ensure proper nutrition during harsh winters. It is now eaten year round. *Kimchi* is said to have many health benefits, including killing bacteria, neutralizing stomach acid, and preventing high blood pressure, obesity, and cancer of the digestive tract. Koreans

eat meat from a special breed of dog; pets are not sacrificed. Dog meat is reputed to be very low in fat and good for virility and general nutrition. It apparently tastes like brisket.

Seoul. Seoul, the 600-year-old capital of South Korea, is the country's political, financial, educational, and cultural hub. This modern city of 14 million (25% of South Korea's population) has a high standard of living. Seoul reminded me of New York City with its many high-rises, loads of traffic, wide river spanned by 12 bridges, great subway, etc. The busy streets of Seoul are lined with shops and markets, unusual cafés, bars and cinemas, and dazzling shopping malls. Entertainment districts feature Internet rooms, bowling alleys, billiard halls, and jazz clubs. In 5 ancient palaces, court ceremonies are reenacted, and some of the Joseon Dynasty shrines, fortress walls, and gates still stand. Seoul is safe, with a low crime rate, and friendly.

I was told that Seoul has 100 hospitals. I visited two of them, both university medical centers. South Korea has 41 medical schools, and 12 of them are located in Seoul. Most of the older medical schools have about 100 students per class; the newer ones have 30 or 40 per class. Medical school lasts for 6 years and begins immediately after high school. Competition is intense, as the medical profession is highly sought after. The physicians at the 12 university hospitals in Seoul are all on salary, and private practice is not permitted. I was told there are approximately 41,000 physicians in South Korea, and 800 are cardiologists. The costs of physician office visits are split between the government and the individual. In contrast, 80% of hospitalization costs are paid by the government and 20%, by the patients. Private insurance for medical care is not a factor in South Korea.

NORTH KOREA

The Democratic People's Republic of Korea, the official name of North Korea, has been governed by two dictators, Kim Il-sung and his son Kim Jong-il, since the separation in 1948 of North and South Korea. It is the most closed and secretive nation on earth. Mobile phones and computers are not allowed. Visitors must be escorted at all times outside their hotels by 2 guides. They are there to bring in much-needed foreign currency (European dollars, not US).

The population of North Korea is unknown but may be as high as 20 million or as low as 15 million. Nearly a third of its gross national product is spent on the military; the minimum military service for both men and women is 6 years. North Korea is one of the most highly militarized societies on earth. Men and women in uniform are everywhere, particularly in Pyongyang, the capital. About 80% of North Korea is uninhabitable mountains. Propaganda apparently is on every corner in North Korea. The North Koreans are told that the USA started the Korean War and that South Korea is a scandal-ridden puppet regime. After 50 years of total repression by the Kim government, there are no surviving networks of dissent. Attendance at political education meetings is required most nights of the week. City streets are deserted after nightfall, as there is often no electricity to power the streetlights or anything to do. A standard North Korean evening involves listening to television or radio propaganda reports or the latest proclamations of the "Great Leader."

The acceptance of hierarchy and hardship helps to explain public passivity in North Korea, which went from the Joseon slave

system to the Japanese colonial system to the totalitarian communist rule of the 2 Kims. The people there have never experienced a day of democracy and civil rights. The Kims have divided the North Korean society into 3 hereditary groups: the *reliables*, which include communist party members, armed forces personnel, and those with peasant ancestors; the *unreliables*, which include family members who were *yangban*; and the *neutrals*, which includes everyone not in the first two categories. Only the *reliables* are allowed to live in Pyongyang, to study at a good university, or to marry a *reliable*.

Historically, North Koreans had been the poor cousins of those in the South long before the tragic split of North and South in 1948. Northerners felt especially mistreated by southerners throughout the Joseon Dynasty. With Korea's economy based on rice, the South, being less mountainous, warmer, and better watered, was naturally wealthier. Little was ever done to address the imbalance or pull the northern populace back from the brink of starvation during their frequent famines. The Japanese occupation of the Korean peninsula (1910–1945) forced many Koreans into slave labor teams to construct factories and work in mines and heavy industry, particularly in the North. The Japanese conquest of Korea was viewed in northern eyes as the result of yet another sellout of the national sovereignty by corrupt southern officials. Most of the guerilla warfare conducted against the Japanese police and army took place in the northern provinces and neighboring Manchuria.

Kim Il-sung was the leader of North Korea from 1948 until his death in 1994. His son assumed power in 1997 after a 3-year mourning period. In 1991 Russia withdrew its support (supplies and subsidies) of North Korea, and the latter's economy has contracted greatly since. The terrible floods of 1995 quickly led to malnutrition and starvation in the next few years, with the death of 1 to 2 million inhabitants. Nevertheless, the North Koreans are a fiercely nationalistic and proud people. Their popular affection for Kim Il-sung was apparently largely genuine, while that for their present leader is not. There is great antipathy towards both the USA and Japan.

All of the 2.2 million inhabitants of Pyongyang are from backgrounds deemed to be loyal to the Kim regime. Since 1970, all North Korean citizens have been obligated to wear a "loyalty" badge featuring Kim Il-sung's portrait. Anyone without these badges is a foreigner. Citizens have no free movement in the country; they need special permission to leave their town of residence. They work 6-day weeks, and the obligatory political education classes in the evenings make for an exhausted populace. Sundays are their only day of relaxation.

In North Korea, no traditional religions are allowed; religion is considered an expression of a "futile mentality," an obsolete superstitious force opposing political revolution, social liberation, economic development, and national independence. Therefore, it has been effectively prohibited since the 1950s. As the Kim regime became more deified in the 1990s, official propaganda against organized religion stopped accordingly.

Medical care in North Korea is in short supply. Hospitals in Pyongyang and other cities often lack heat, medicine, and supplies and suffer from frequent power outages and outbreaks of infection. Hospitals do not generally provide food for patients. Reagents for diagnosing infectious diseases such as tuberculosis are

generally unavailable. Between 4000 and 7000 hectares of land are dedicated in North Korea to cultivating the opium poppy, which of course is used to make heroin.

DELICIAS, CHIHUAHUA, AND MEXICAN CARDIOLOGY

Dr. Carlos Velasco and I (along with Imelda Garza Lewis from International Services) were invited to speak at the Chihuahua State Cardiology Society Congress held in Delicias, Chihuahua, on May 12 and 13, 2005. The meeting provided an opportunity to learn a bit about cardiology in this area in Mexico. The meeting was attended by nearly 700 cardiologists, medical students, internists, and nurses. Most attendees were from the state of Chihuahua, but others came from Mexican cities great distances from Delicias. Delicias is a city of approximately 200,000 residents and is located about 70 km south of Chihuahua City. The reason this large meeting was held in the relatively small town of Delicias is that Dr. Arturo Nájera Herrera, the president of the Cardiology Society of the State of Chihuahua, resides in Delicias, and he chose his city for the meeting. The presentations were similar to those of any national or international meeting on cardiology held in the USA.

Forty-six-year-old delightful Dr. Nájera told me a good bit about how cardiology is practiced in his home city. There are four cardiologists in Delicias, and each is in solo practice. None of the government or private hospitals in Delicias has a cardiac catheterization laboratory, and therefore when Dr. Nájera's patients need cardiac catheterization, angioplasty, or coronary bypass, they are sent to Chihuahua City. There, Dr. Nájera performs the cardiac catheterization, after which the cardiologists in Chihuahua City take care of his patient.

His life is busy. He gets to the first of the 3 hospitals where his patients are hospitalized at about 7:30 AM and after ward rounds at all 3 institutions goes to his office at about 10:00 AM and sees patients. At about 3:00 PM, he goes home for the large meal of the day, sometimes staying only 15 minutes but at other times for over an hour. His lovely wife, Carmelita, and his 2 wonderful daughters, Carmelita and Brenda, always have lunch together at home (until Carmelita went away to university). Thereafter, at about 4:00 PM, Dr. Nájera returns to his private office and sees patients until 8:00 or 9:00 PM. His fees are paid in cash at the time of the visit. His patients are primarily farmers, lumber workers, furniture makers, and miners, the major businesses of Chihuahua State. On Saturdays, he sees patients in another town from about 8:00 AM to 4:00 PM. His Sundays are free except for visiting his patients in the hospitals.

The other 3 cardiologists in Delicias are also in solo practice. There are no sign-out procedures to another physician or coverage when one is away. When Dr. Nájera goes out of town for meetings or vacation, which amounts to about 1 month per year, he simply leaves town. Patients who need physician assistance during his absence go to the emergency room of one of the local hospitals and are referred to another physician. Malpractice suits are infrequent in Mexico but are increasing in the large cities.

Dr. Nájera's patients are prime candidates for cardiovascular disease. The state of Chihuahua, the largest of the 31 states in Mexico, is a large, arid farming and lumbering area. The typical breakfast includes 2 or 3 eggs, bacon and/or steak, and refried beans topped with local fresh cheese. Lunch, the largest meal,

usually includes a steak and some fatty foods, and the late night meal often includes another steak. Obesity, hypertension, diabetes mellitus, and coronary events are now extremely common in the state of Chihuahua. Dr. Nájera told me that in a study of patients in Juarez City, Chihuahua City, Cuauhtemoc, and Delicias, the levels of blood pressure, cholesterol, and blood sugar were higher in Delicias than in the three other cities in the state. I presume that the frequency of risk factors, diabetes, and coronary events are similar in other northern Mexican states.

I participated in the meeting only on Friday, and on Saturday afternoon Dr. Nájera and his wife and daughters took me on a beautiful drive through western Chihuahua State to the rugged Sierra Madre, the Copper Canyon—a series of gorges, some deeper than the Grand Canyon in the USA. We stayed at the hotel Divisadero, which provides magnificent views of the canyons. On its grounds were many Tarahumara Indians, who live in the canyons, make their crafts, and sell them to the many visitors. The largely reclusive Tarahumara Indians are closely related to the Pima Indians (~10,000) of southern Arizona, who have a very high frequency of diabetes mellitus. The Tarahumara once occupied the entire state of Chihuahua. They are renowned for their running ability, for their low absorption rates of intestinal cholesterol, and for their low serum cholesterol numbers. It is said that in earlier times they hunted deer by chasing them to their collapse. Like so many native groups, the Tarahumara were totally disrupted by the European arrival in the area (2). The threat of slavery and the series of wars that began in the 1600s and continued until the 20th century forced them to retreat deeper and deeper into the canyons, where they are still subject to having their land taken over by loggers, miners, and apparently by drug lords. Many are seminomadic, roaming the high plateaus of the Sierra Madre in summer and moving down to the warmer canyon floor in winter to live in stone-cliff dwellings or hidden wooden houses. Their population, ravaged over the years by disease, drought, and poverty, is estimated at around 50,000. They are in superb physical condition, usually walking miles each day in the mountains and canyons. The men are rather thin; the women are short and heavyset. Our walking guide had muscles of steel. Their skin is dark, their hair is black, and they have no hair on their faces or the rest of their bodies. The Tarahumara dietary staple is corn, with some beans, potatoes, and apples; some raise domesticated goats and cattle and catch fish and small game.

RUSSIA'S POPULATION

Tens of thousands of Russian villages are slowly dying out as the country faces an alarming decline in population (3). Millions have abandoned Russia's villages to seek a better life in the cities. But, a high mortality rate lingers for those who stay. Alcoholism, tuberculosis, and AIDS plus road accidents, suicides, and other unnatural causes of death are eroding the population at an alarming rate. Circulatory diseases are a major killer. Life expectancy for a Russian man has sunk to 58 years, the lowest of the 53 countries in the World Health Organization European region. In 2002, a nationwide census showed that the population had slumped to 144 million from 147 million at the time of the previous census in 1989. There is fear that Russia's more populous neighbors, such as China, will slowly encroach on its territory. The United Nation's Population Division has projected

that Russia's population could drop by at least 20 million over the next two decades and by a third by 2050. In the first 9 months of 2004, the population fell by 0.47%—almost 700,000 people. The main reason for the fall appears to be a very low fertility rate, exacerbated by a high mortality rate.

Before the Bolshevik Revolution in 1917, when it was still a largely peasant society, Russia's birth rate was high because people married young, contraception use was scarce, and abortions were forbidden. From the 1930s onward, however, those habits began to change as urbanization accelerated. By 1960, Russia's fertility rate fell below the 2.1 children per woman required to maintain a stable population. The current total fertility rate in Russia is 1.2 children per woman, compared with 1.6 in the United Kingdom and 1.8 in France. The huge losses of Russians during the Second World War, maybe 20 million, suggested a low value on individual human existence, and that thought is still in effect today. The underfunding of health services and the increased problem of alcoholism and poor diet have also had major effects. Matters worsened further when the Soviet Union dissolved in 1991. That disruption drove many to alcohol and drug addiction. Current spending on health care in Russia is only US \$115 per capita annually, less than a third of what is spent in former Soviet bloc countries such as Hungary and the Czech Republic.

Although the Russian economy has made significant improvements, economic inequality in Russia has grown sharply in recent years and is equivalent to the disparities found in Latin America and sub-Saharan Africa. Greater spending on health care in Russia appears essential. In many Russian villages today, the death rate is >2 times higher than the number of births. Abortion remains widely used in Russia as a substitute for contraception. Many women have numerous abortions, and terminations are a major cause of women's mortality and infertility. Some attribute the collapse of fertility to economics. When people are uncertain about the future, they don't have children. Mass immigration like in the USA and Canada can stabilize the decline, but the country's gates have not been open to immigrants very widely.

MEDICARE AND SOCIAL SECURITY INSOLVENCY

According to an analysis by John Goodman, president of the National Center for Policy Analysis in Dallas, in 2004 Medicare began paying out more in benefits than it received from the payroll tax, and the same will occur with Social Security by 2018 (4). The percentage of federal income tax revenues needed to fund Social Security and Medicare deficits by 2010 will be 9%; by 2020, 29%; by 2030, 53%; and by 2050, 76%. The Medicare program starts paying for prescription drug benefits in January 2006, and these benefits are now mostly paid by individuals or by company insurance plans. The government now covers 24¢ of every \$1 spent on prescription drugs. When the new program begins in January, Medicare will pay 41¢ of every \$1. Medicare presently is growing nearly 9% annually, nearly double the rate of economic growth but still behind the near 13% increase in health premiums that the private sector pays. The accelerating Medicare costs will increasingly crowd out other government programs.

Why are Medicare's costs soaring? First, the number of Medicare beneficiaries has doubled to 40 million since 1970 and is expected to almost double again to 77 million by 2030. By that time, the program will cover nearly 20% of Americans. Second,

people are living longer, so they consume health care services for more years. Third, health care costs continue to rise. Thus, although Social Security is in big trouble, Medicare is in even more trouble.

GENERAL MOTORS AND HEALTH CARE

General Motors partly blamed its \$1.1 billion first quarter losses on the cost of its general benefits—a cost so high that George Will declared that there is now “more health care than steel in a GM vehicle's price tag” (5). Combined with sagging sales, the automaker is finding it impossible to compete with Japan's Toyota, which relies on government-funded health care. The columnist predicts situations like this will produce a push by much of corporate America for the federal government to assume more health care costs. This would be done in the name of “leveling the playing field to produce competitive fairness.”

COMING DOCTOR SHORTAGE

According to a piece in the *New England Journal of Medicine*, about 10 years from now when physicians from the baby boom generation begin to retire in large numbers, we won't have enough physicians in the USA (6). The nation now has about 800,000 active physicians, up from 500,000 20 years ago. The Council on Graduate Medical Education, a committee that since the 1980s has advocated restricting the supply of new physicians, has reversed that policy and now recommends training 3000 more doctors a year in US medical schools. The USA dramatically expanded the number of physicians being trained in the 1960s and 1970s, creating 2 new physicians for every one who retired. The production of new physicians, however, has changed little since 1985. Today, the number of new physicians roughly equals the number of retiring physicians. Although about 25,000 new physicians are licensed in the USA each year, the number retiring 10 years from now will exceed that number.

Congress controls the supply of physicians by the federal funding of medical residencies. Medicare is the primary federal agency that controls the supply of physicians in the USA. It reimburses hospitals for the costs of training medical residents. The government spends about \$11 billion annually on 100,000 medical residents, or roughly \$110,000 per resident. The number of residents has hovered at this level for the past decade. In 1997, to save money and prevent a physician glut, Congress capped the number of residents that Medicare will pay for at about 80,000 a year. Another 20,000 residents are financed by the Department of Veterans Affairs and Medicaid (the state-federal health care program for the poor). Medicare already spends 3% of its budget training physicians and may not have the resources to spend more. The portion of US income spent on health care rose from 8.8% in 1980 to 15.4% in 2004 and will reach nearly 19% in 2014, according to Medicare estimates. That means more physicians are needed.

Demographic changes in the medical profession also contribute to the need for more physicians. Nearly half of new physicians in the USA are women, and studies show they work an average of 25% fewer hours than male physicians. Physicians older than 55 work about 15% less than younger physicians, and medical residents have been limited to 80-hour weeks since 2003, ending decades of 100+-hour weeks.

The USA stopped opening medical schools in the 1980s because of the predicted surplus of physicians. In 2002 the Association of American Medical Colleges recommended increasing the number of US medical students by 15%. Florida State University's College of Medicine was the first new medical school in the USA since 1982; its first class will graduate this year. Arizona, Nevada, California, and Florida are considering opening additional medical schools, and other states are considering expanding theirs.

Some medical policy specialists, however, say the USA does not have too few physicians, just poor distribution of them. Others worry that more physicians will drive up the cost of medical care, not make it less expensive or more accessible. Health is not always improved by ordering more tests, more procedures, or more drugs.

A LIVING WILL AND TERRI SCHIAVO

Al Neuharth in a recent column indicated that only 33% of adults in the USA have a living will, and most of those who do are at or near retirement age (7). Younger adults rarely bother. Schiavo, who died at age 41, was just 26 years old when she had a nonfatal cardiac arrest and was in a persistent vegetative state thereafter for the next 15 years. It might be even more important for young people to have a living will than for us older folks! Most lawyers now will draw up a 1- or 2-page living will for about \$100. Most states actually recognize a personalized, handwritten living will, if a family member or trusted friend serves as the health care agent and 2 independent witnesses sign the document. Maybe the simplest way is to log on to the Internet at www.caringinfo.org. A not-for-profit organization called Caring Connections will provide a short form on the Web, tailored to meet the laws of each person's particular state. Copies of one's living will should be given to family members, with another copy stored in a central location for quick and easy access.

Terri Schiavo's cardiac arrest in 1990 was precipitated by her extremely low serum potassium level, namely 2.0, presumably the result of a history of eating disorders. As a teenager and young adult of 63 inches in height, her weight had gone from >200 pounds to 110 pounds. Thus, overweightness was the problem that precipitated the fatal cycle.

THE DEATH PENALTY

Since the US Supreme Court reinstated the death penalty in 1976, 38 of the 50 states have reinstated that penalty (8). The death penalty is banned in the other 12 states. In 6 states, the death penalty is allowed but has not been used since 1976. Of the 32 states where an execution has occurred since 1976, in 5 states only 1 prisoner has been executed in the last 28 years and in 9 states, fewer than 6 have. In 18 states, 10 or more inmates have been executed since 1976. Since 1976, 940 have been executed, and 335 (36%) were executed in a single state, namely Texas. In 2004, 58 inmates were executed in the USA, and 22 (38%) were in a single state, namely Texas. Of the 12 states with the largest number of executions since 1976, all are in the southern portion of the country. Texas is number one in several different areas, but I'm not sure we should be too proud of this particular first place. Mexico does not allow execution of inmates.

ON RAISING THE DRIVING AGE

According to a piece in *USA Today*, one of five 16-year-old drivers crash their cars within the first year after receiving their driver's licenses; nearly a thousand 16-year-old drivers were involved in fatal crashes in 2004, and 77% of fatal crashes of 16-year-old drivers involve driver errors (9). On average, 2 people die every day in the USA in vehicles driven by 16-year-old drivers. Sixteen-year-old drivers are involved in fatal crashes at a rate nearly 5 times the rate of drivers aged ≥ 20 . The number of fatal crashes per 100 million miles traveled is 9.3 for 16-year-old drivers; 8.3 for 17-year-old drivers; 6.5 for 18-year-olds; 4.3 for those 20 to 24; 2.3 for those 25 to 29; and 1.6 for drivers aged 30 to 69. The number jumps to 4.1 for those aged ≥ 70 years. In 2002, traffic crashes were the leading cause of death for 16- to 19-year-olds, accounting for 41% of deaths, followed by homicide, 14%; suicide, 11%; malignant tumors, 5%; and heart disease, 3%.

Although many parents would be inconvenienced and some 16-year-olds would be frustrated, raising the driving age from 16 to 17 would save lives. Today in the USA, nearly 2 of every 3 adults favor increasing the minimum age for obtaining a driver's license. We cannot vote, buy cigarettes, or join the military until we are 18, and we cannot buy alcohol or gamble until we are 21. It is estimated that 20,000 lives have been saved by raising the age to buy alcohol from 18 to 21. The "executive branch" of the teen brain—the part that weighs risks, makes judgments, and controls impulsive behavior—is generally far less developed in a 16-year-old than in an older teen, and this portion of the brain is not fully developed until age 25 years.

Because it is unlikely that many state legislatures will raise the driving age, safety experts recommend the following guidelines that every parent can enforce. 1) *Insist on seatbelt use*. About 50% of teen drivers who die in crashes are not wearing seatbelts. 2) *Forbid alcohol drinking and driving*. About 25% of teen drivers who die have blood-alcohol levels $\geq 0.08\%$. 3) *Limit night driving*. Teen drivers are 3 times as likely as drivers ≥ 20 to be involved in fatal crashes from 9:00 PM to 6:00 AM. 4) *Avoid teen passengers*. A teen's risk of dying nearly doubles with at least one young male passenger.

AUTOMATIC EXTERNAL DEFIBRILLATORS ON COMMERCIAL AIRLINE CARRIERS

In 1997, American Airlines and American Eagle became the first US airline to install automatic external defibrillators in their planes (10). Since that time, the devices have been used >1300 times in passengers. In most of those cases, the device indicated that a shock was not required. But, in numerous cases, shock was provided. Despite their cost of \$3000 and the many hundreds of commercial airplanes they are now in, it appears that these automatic external defibrillators have proven their effectiveness.

NEW FOOD PYRAMID

The US Department of Agriculture came out with its first dietary pyramid in 1992. The new food pyramid unveiled in April 2005 is still a pyramid but has rainbow colors and a stylized stepladder on one side (11). The new version emphasizes eating fruits and vegetables, going easy on meat and fats, limiting sodium consumption to about 1 teaspoon a day, and exercising at least 30 minutes daily. On the new pyramid, each color

stands for a food group, and its thickness shows the proportion each group should be in the diet: orange is for grain; green for vegetables; red for fruits; blue for milk products; purple for meat and beans; and yellow for oils. The department's new health website, www.mypyramid.gov, features 12 pyramids tailored to various nutrition needs. The new site provides dietary recommendations based on age, gender, and level of physical activity. Consumers can keep online eating diaries through the site, which will measure how their eating habits match up with the federal guidelines.

MONSTER THICKBURGER

Jay Leno joked that it comes in a cardboard box shaped like a coffin (12). It's the Monster Thickburger, Hardee Restaurant's 1418-calorie, super-sized sandwich with 107 fat grams. In contrast, the Double Quarter Pounder with Cheese from McDonald's contains only 730 calories and 40 fat grams, and Burger King's Double Whopper with Cheese contains 1060 calories and 69 fat grams. Fast food means quick plaques. Unfortunately, Hardee's has 2050 outlets, and its sales have climbed 20% since the 2003 introduction of the Thickburger, which costs \$5.49. The Thickburger had done especially well with men aged 18 to 34 years. These are the ages when health starts going to pot.

OBESITY AND INCOME

In the 3-year period 1971–1974, 23% of Americans earning <\$25,000 annually were obese; during the same time period, 10% of those earning >\$60,000 annually were obese (13). In the 2-year period 2001–2002, 33% of those earning <\$25,000 were obese, and 27% of those earning >\$60,000 were obese. Thus, there is now little difference in obesity rates among income groups. About 30% of all Americans are obese. The average adult American woman is 64 inches tall, weighs 155 pounds, and wears a size 14 dress. If each of us would lose as few as 10 pounds, the incidence of atherosclerosis, diabetes mellitus, some cancers, and some arthritic conditions would decrease.

BODY MASS INDEXES OF NATIONAL FOOTBALL LEAGUE PLAYERS

Many National Football League (NFL) players are obese. A recent piece in *JAMA* showed that 56% of NFL players in the 2003–2004 season had a body mass index (BMI) ≥ 30 kg/m², an indication of obesity (14). In contrast, of non-NFL players aged 20–39, 23% had a BMI ≥ 30 . The study included 2168 NFL players aged 21 to 44 years. Of the obese players, 26% had a BMI >35 (severely obese) and 3%, >40 kg/m² (morbidly obese).

MAYO CLINIC IN ROCHESTER CELEBRATES 50 YEARS OF CARDIOVASCULAR SURGERY

Fifty years ago, John W. Kirklin (15), aged 38, used a heart/lung machine, which he had a role in developing, to operate on 8 patients, 4 of whom survived (16). The first procedure was on March 22, 1955. The patient was a 5-year-old child with a large ventricular septal defect. The operation was successful, and the postoperative course was uneventful. The first report of the experience was published in the *Proceedings of the Staff Meetings of the Mayo Clinic* in May 1955. It represented the first clinical series of patients having open heart surgery with a mechanical

pump oxygenator, which was a modification of the Gibbon pump oxygenator. The Mayo Clinic for one shining moment was the only institution in the world where one could go for open heart surgery.

Since that time, >63,000 cardiac operations have been performed at the Mayo Clinic in Rochester, Minnesota, and >2300 such procedures are currently performed annually. The Division of Cardiovascular Surgery comprises a staff of 9 cardiovascular surgeons. More than 120 cardiothoracic and cardiovascular surgeons have been trained at the Mayo Clinic in the intervening 50 years. Thousands of journal articles describing surgical technique, optimal timing of operation, pre- and postoperative physiology, pathology, anesthesia technique, and imaging modalities have been published by Mayo Clinic clinicians.

The success of the initial series of open heart operations at the Mayo Clinic required the multidisciplinary effort of a group of talented and dedicated individuals. Expertise in physiology, engineering, cardiology, pathology, and anesthesiology led to the refinement and building of the pump oxygenator machine, the proper preoperative diagnosis, the development of precise surgical techniques based on a detailed understanding of the defect to be repaired, and careful interoperative and postoperative monitoring and care.

ROUTINE EPISIOTOMY

As a medical student at Emory University Medical School, I delivered 104 babies at Grady Memorial Hospital. Episiotomy was done routinely; if it was not done, the medical student or intern would hear quickly from the senior resident. A recent article examined controlled trials of routine episiotomy and assessed outcomes in the first 3 postpartum months (17). These clinical trials suggest that immediate maternal outcomes of routine episiotomy, including severity of perineal laceration, pain, and pain medication use, are not better than those with restrictive episiotomy use. The studies did not demonstrate benefit from episiotomy for prevention of fecal and urinary incontinence or pelvic floor relaxation. Likewise, there was no evidence to suggest that episiotomy reduced impaired sexual function, but pain with intercourse was more common among women with episiotomy. Thus, evidence does not support maternal benefits traditionally ascribed to routine episiotomy.

GIANT BABY

A 17-pound baby boy was born in Brazil to a 38-year-old diabetic mother by cesarean section in January 2005 (18). That is the average size of a 6-month-old. He appears to be healthy. The largest baby ever born via vaginal delivery or cesarean section was a boy weighing 23 pounds, 12 ounces in Seville, Ohio, in 1879, according to *The Guinness Book of World Records* (19).

CHANGES IN PLASMA VOLUME AND HEMATOCRIT VALUES WHEN MOVING FROM A SUPINE TO A STANDING POSITION

Jacob and associates (20) from Nashville, Tennessee, measured blood hematocrit and plasma volumes in 28 normal subjects and found that a change in posture from supine to standing increased the hematocrit from 37.7% to 41.8% and decreased the plasma volume from 2770 to 2350 mL. The absolute increase in hematocrit of 4.1% represented a relative increase of 11% from

lying to standing. The maximum individual plasma volume change with posture ranged from 6% to 25%, and the maximum absolute change in plasma volume ranged from 149 to 717 mL, with a mean change of 417 mL. The changes in hematocrit were complete within 20 minutes of standing. The changes in plasma volume occurred within the first 10 to 15 minutes of the new posture. Thus, movement from the supine to the standing posture leads to a rapid and persistent hemoconcentration and a conspicuous intravascular plasma volume loss. Additionally, the hematocrit often provides a reliable estimate of plasma volume changes. It's good to know what position the patient is in when the blood hematocrit is measured.

ELEPHANTS AND THE UNIVERSITY OF ALABAMA FOOTBALL TEAM

In Tuscaloosa, Alabama, I stopped by Best Western for breakfast on my way to attend a christening ceremony for my youngest grandson in March 2005. The hotel's entrance featured statues of 3 elephants, 2 adults and a baby, and an "Interesting Elephant Facts" display, which contained the following information.

A large male elephant typically weighs 6 tons and is 10 feet high at the shoulders. The largest recorded elephant weighed >9 tons and stood >12 feet high at the shoulder! The average life span is 70 years. Elephants begin mating at the age of 20 years. Their gestation period is 22 months. Elephants cry, laugh, play, and have incredible memories. They are sensitive to fellow animals. If a baby elephant complains, the entire family rumbles and moves to touch and caress it. Every time a friend returns to the group from a long absence, the others perform a greeting ceremony. Elephants also grieve at the loss of a stillborn baby, a family member, and usually for other group members.

Tuscaloosa is the home of the University of Alabama, and the elephant has been its mascot since 1930. Elephants share characteristics of the best football teams: they work in groups, can be well trained, and are strong, intelligent, and reliable. The choice of elephant for the school mascot began with Coach Wallace Wade. Sports writer Everett Strupper of the *Atlanta Journal* wrote that the coach assembled "a typical Wade machine, powerful, big, tough, fast, aggressive, well-schooled in fundamentals." From that time on, the Alabama linemen were referred to as "red elephants" for their crimson jerseys, size, and strength. That 1930 team shut out 8 opponents, posting an overall 10-0 record. They allowed only 13 points all season while scoring 217 points. They rolled over Washington State 24 to 0 in the Rose Bowl and were declared national champions.

GLENN DAVIS (1924–2005)

When I was a youngster, Glenn Davis and Felix (Doc) Blanchard were my football heroes. Both played 3 years at Army (1944–1946), and during that period each won the Heisman Trophy as college football's outstanding player, Blanchard in 1945 and Davis in 1946 (21). During their 3 years together, Army posted a 27-0-1 record. I had a particular fondness for Glenn Davis, the 5-foot 9-inch, 170-pound halfback ("Mr. Outside"), while Doc Blanchard was "Mr. Inside." During high school in California, Davis earned 13 letters in 4 sports. In football at Army he scored 59 touchdowns in the 3 years, while Blanchard scored 38. Davis' career average of 8.3 yards a carry remains a

major college record. Davis also played baseball and ran track. In 51 baseball games for Army, Davis batted .403 and stole 64 bases in 65 attempts, including second, third, and home in an exhibition against the Brooklyn Dodgers. Branch Rickey, then Dodger president, offered Davis \$75,000 to sign. In 1947, Davis ran a 6.1-second 60-yard dash at Madison Square Garden, beating Barney Ewell, who the next year won the silver medal in the 100-meter dash at the London Olympics. After their 3 glorious seasons together, Davis was drafted by the Detroit Lions and Blanchard by the Pittsburgh Steelers. They each were offered \$130,000: a \$10,000 signing bonus and \$40,000 a year for 3 seasons. (At the time, pro-football's best players were making about \$20,000 a year.) Both, however, were newly commissioned second lieutenants with 3-year military obligations, and they never played professional ball.

THE FOUR AGREEMENTS

Don Miguel Ruiz, MD, was born into a family of healers and raised in rural Mexico by a *curandera* (healer) mother and a *nagual* (shaman) grandfather. The family anticipated that Miguel would embrace their centuries-old legacy of healing and teaching and care for the esoteric Toltec knowledge. Instead, Miguel chose medical school and became a surgeon. A near-death experience, however, changed his life. One late night in the early 1970s, he fell asleep while driving and his car hit a concrete wall. Miguel remembers pulling his 2 friends in the car with him to safety. Stunned by this experience, he began an intensive practice of self-inquiry. He devoted himself to the mastery of the ancient ancestral wisdom, studying earnestly with his mother and completing an apprenticeship with a powerful shaman in the Mexican desert. Subsequently, he has devoted his life to sharing the wisdom of the ancient Toltec.

His book, *The Four Agreements*, appeared in 1997 (22). These 4 very powerful agreements help break negative and unloving thoughts. The idea is that these 4 agreements will unleash positive energy that will transform our lives. They are as follows:

1) *Be impeccable with your word.* Speak with integrity. Say only what you mean. Avoid using the word to speak against yourself or to gossip about others. Use the power of your word in the direction of truth and love.

2) *Don't take anything personally.* Nothing others do is because of you. What others say and do is a projection of their own reality. When you are immune to the opinions and actions of others, you won't be the victim of needless suffering.

3) *Don't make assumptions.* Find the courage to ask questions and to express what you really want. Communicate with others as clearly as you can to avoid misunderstandings, sadness, and drama. With just this one agreement, you can completely transform your life.

4) *Always do your best.* Your best changes from moment to moment; it will be different when you are healthy as opposed to when you are sick. Under any circumstance simply do your best, and you will avoid self-judgment, self-abuse, and regret.

52 PRECEPTS FOR PHYSICIANS

Wright and colleagues (23) from The Johns Hopkins Hospital in Baltimore, Maryland, prepared a list of 52 precepts that physicians should consider regularly (*Table*).

Table. A list of the 52 precepts that medical trainees and physicians should consider regularly*

Promotion of relationships with patients

1. Greet patients by their names, tell them your name and your role in their care
2. Smile
3. Sit down when talking to patients
4. Listen
5. Be wholly present when interacting with patients and avoid unnecessary interruptions
6. Learn who your patients are and consider sharing something about yourself with them
7. Show the utmost respect for all patients
8. Be humanistic, compassionate, and caring
9. Even if it is a struggle to think positively of a patient, always speak of them in a positive way; this will influence your thinking positively
10. If you are feeling negative emotions towards a patient, try to understand why you are feeling this way

Principles of the effective clinician

11. The history and physical examination are not like a biopsy fixed in formalin, but are dynamic entities that should be revisited frequently
12. A patient's history should not be "aspirated"; it should instead be "built" purposefully with effective communication skills
13. Be curious—seek to find out exactly how and why events occurred and do not accept diagnoses and conclusions made by others
14. Recognize the patient as teacher
15. Elaborate a differential diagnosis that is as broad as the history and physical examination dictate
16. After forming a diagnostic hypothesis, focus on any symptoms or signs that are either atypical or incompatible with the diagnosis; these must be explained and not ignored
17. Always consider and exclude catastrophic treatable diseases
18. Continually strive to improve your diagnostic skills by mentally committing to a specific answer or conclusion before definitive testing
19. Watching patients walk is a critical component of the physical examination, particularly if their level of function is compromised
20. Look at the sacrum and heels of any patient who is bed-bound
21. Think about and plan for how to best deliver the information before telling important news to patients about their health
22. Explain medical concepts in simple language; avoid medical jargon and make sure that the patient understands
23. Teach patients what they need to know to make an informed decision
24. Strive to become a healer
25. Solicit help when you are stumped or at a loss in caring for a patient
26. Review your patient's drug list and require explicit justification for every medication
27. Remember that the ill patient is not at his best
28. Do not discuss patients in public places (e.g., elevators)
29. Appreciate the contributions of all members of the health care team
30. Try to be as organized as possible—be prepared and be thorough yet efficient
31. Focused reading to answer specific clinical questions is more nourishing [than] leafing through a current issue of a medical journal
32. Know that much practice, reading, and years of hard work are essential parts of becoming an excellent physician
33. When you have made a mistake in the care of a patient, follow these steps: (a) admit it, (b) inform the patient, (c) if possible, initiate reparation, (d) institute a mechanism whereby you will not repeat the error, (e) attempt to establish a mechanism whereby others in the system cannot make the error, (f) forgive yourself

Growth and improvement

34. Strive to achieve personal awareness and an understanding of your beliefs, values, and attitudes
35. Recognize and acknowledge powerful experiences
36. Seek out and embrace helping relationships
37. Make time for reflection
38. Observe other physicians carefully and learn from role models
39. Realize that people are watching you closely—strive to be a role model for others
40. Be creative and innovative
41. Try to look into an accurate mirror

Values to guide one's career in medicine

42. Avoid being cynical
43. Understand that medicine is a public trust
44. Be humble
45. Be ethical in all of your work as it relates to the profession of medicine
46. Aspire to become a great teacher
47. Stand up for what you believe in
48. Aim for a comfortable balance between your personal and professional lives
49. Try your best
50. Continually search for meaning in your work in medicine
51. Celebrating successes may help to avoid burnout
52. Be thankful and happy that you are in medicine

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FIVE MARKS OF A GREAT LEADER

Paul Johnson, the eminent British historian and author, had a piece recently entitled “Five Marks of a Great Leader” (24). These marks were as follows. 1) *Moral courage*. This is the willingness to stick to one’s beliefs, to pursue a course of action in the face of overwhelming criticism, great adversity, and, not least, the faintheartedness of friends and allies. 2) *Judgment*. Courage without judgment is pointless and may be dangerous. What makes a person judge wisely? It is not intelligence or education. It may come from one’s ability to mix with and learn from other people, not so much from experts, but from common people, those who lack the arrogance of power or the desire to show off their intelligence but who nevertheless think deeply about life’s trials. A person of judgment develops the habit of asking questions of such wise people and listening to their replies. 3) *A sense of priority*. Sorting out the truly big from the small takes an innate “horse sense” that is not given to most human beings. It has little to do with intelligence. 4) *The disposal and concentration of effort*. Leaders must allocate their time and energy exceedingly well. 5) *Humor*. Johnson considers this a key element of leadership. He mentioned 2 leaders who virtually governed through jokes: President Lincoln, who had a vast repertoire of homespun stories, all pointed; and President Reagan, who communicated chiefly through one-liners, of which he had many thousands that covered every possible occasion. A subordinate always serves more zealously and obeys more faithfully a leader who can joke, and the public warms to a potentate who can make them laugh.



—William Clifford Roberts, MD
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